

**REMARKS**

Reconsideration and allowance of the present application are respectfully requested in light of the amendments above and the remarks that follow. By this Amendment, Applicant has amended claims 1, 10, 19 and 29 to clarify the recited subject matter.

Claims 1-38 are pending. Applicant gratefully acknowledges the Examiner's continued indication that claims 9, 18, 28 and 38 would be allowable if rewritten in independent form.

The Office Action includes a rejection of claims 10-12, 14, 17, 29, 30, 33, 36 and 37 under 35 U.S.C. § 103(a) as allegedly not being patentable over "Mosaic Image Method: A Local And Global Method" by Li Zhao and Yee-Hong Yang ("Zhao") in view of "Eigenfaces vs. Fisherfaces: Recognition Using Class Specific Linear Projection" by Peter N. Belhumeur, João P. Hespanha, and David J. Kriegman ("Belhumeur"); a rejection of claims 1-3, 5, 8, 19, 20, 23, 26 and 27 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the purported combination of *Zhao* and *Belhumeur* in view of "Generalized Discriminant Analysis Using a Kernel Approach" by G. Baudat and F. Anouar ("Baudat"); a rejection of claims 15, 16, 34 and 35 under 35 U.S.C. § 103(a) as allegedly not being patentable over the purported combination of *Zhao* and *Belhumeur* in view of "Multiresolution Eigenface-Components" by A.Z. Kouzani, F. He, and K. Sammut ("Kouzani"); a rejection of claims 6, 7, 24 and 25 under 35 U.S.C. § 103(a) as allegedly not being patentable over the purported combination of *Zhao*, *Belhumeur*, *Baudat* in view of *Kouzani*; a rejection of claims 13 and 31 under 35 U.S.C. § 103(a) as allegedly not being patentable over the purported combination of *Zhao* and *Belhumeur* in view of U.S. Patent No. 6,567,771 to Erdogan et al. ("Erdogan"); a rejection of claims 4 and 21 under 35 U.S.C. § 103(a) as allegedly not being patentable over the purported combination of *Zhao*, *Belhumeur*, and *Baudat* in view of *Erdogan*; a rejection of claim 32 under 35 U.S.C. § 103(a) as allegedly not being patentable over the purported combination of *Zhao* and *Belhumeur* in view of U.S. Patent Application Publication No.

2004/0066953 to *Bock*; and a rejection of claim 22 under 35 U.S.C. § 103(a) as allegedly not being patentable over the purported combination of *Zhao*, *Belhumeur*, and *Baudat* in view of *Bock*. These rejections are respectfully traversed.

**Examiner Interview**

Applicant appreciates the opportunity provided by Examiner Yuan to discuss the application with her and Examiner Chen. In the interview, the Examiner clarified her reasons for rejecting the pending claims. Particularly, the Examiner argued that the PCA transformation disclosed by the *Zhao* reference included two transformations - one that determines "axes" using model image data, and one that classifies images by projecting new image data onto the "axes" determined using the model image. This was the first time the undersigned was informed of the basis of the rejection. It is noted that Applicant filed two prior replies which clearly show a lack of appreciation of the grounds of rejection, and the Examiner did not clarify her position until the Interview. Out of fundamental fairness, Applicant submits that the presently proposed changes to the claims should be entered since the Examiner had several opportunities to clarify her position and the Applicant would have addressed the arguments made in the interview if given the chance.

In addition, the undersigned asked why the changes in the Amendment After Final filed January 14, 2008, were not entered by the Advisory Action dated January 25, 2008. The Examiner apparently believes that changes made after final rejection should not be entered unless the changes place the Application in condition for allowance. Applicant disagrees - this is not the correct standard.

Pursuant to 35 C.F.R. § 1.116, amendments after final action and prior to appeal may be made when "complying with any requirement of form expressly set forth in a previous Office action" and "presenting rejected claims in better form for consideration on appeal may be admitted." In addition, "[a]n amendment touching the merits of the application or patent

under reexamination may be admitted upon a showing of good and sufficient reasons why the amendment is necessary and was not earlier presented."

Applicant's amendment of claims 27 and 37 were made to comply with a requirement of form expressly set forth in the Final Office Action. In response to a rejection under 35 U.S.C. § 112, second paragraph, Applicant made minor changes which deleted the word "the" to clarify antecedent basis for claim terms. The changes, however, did not affect the scope of the claims or the Examiner's interpretation of the recited subject matter. Thus, these changes required no further search or consideration of the prior art. Moreover, entry of the changes would have placed claims 27 and 37 in better form for appeal because their entry would have eliminated the rejection under 35 U.S.C. § 112.

In light of 35 C.F.R. § 1.116, there appears to be no proper reason for denying entry of the changes made to claims 27 and 37 in the Amendment After Final dated January 4, 2008. Applicant respectfully requests that the Examiner clarify her reasons for doing so.

**Finality of Office Action**

It is respectfully submitted that the Office Action of October 5, 2007, was prematurely made final. Specifically, the Office Action includes a new grounds of rejection that was not necessitated by the Amendment of September 11, 2007. Pursuant to M.P.E.P. §§ 706.07(h) and 1207.03(III), a new ground of rejection may occur when the basic thrust of the rejection changes such that an appellant is not given a fair opportunity to react to the rejection; where the statutory basis for the rejection is changed; or where evidence relied upon in support of the rejection is changed.

In the present Office Action, the Examiner argues "Zhao et al. does teach a second transformation when teaching finding a projection vector of the input image's single global eigenvector." The Examiner has apparently been relying on this rational since the first Office Action. However, during the interview the Examiner acknowledged not previously explaining

this interpretation or mentioning the evidence of "finding a projection vector" in any of the three communications<sup>1</sup> prior to the interview and the present Office Action. Because the above-noted argument made by the Examiner in the Office Action was not previously presented it constitutes new evidence which Applicant has had no prior opportunity react to. Accordingly, the argument constitutes a new grounds of rejection and, therefore, the finality of the Office Action is premature.

Applicant has reviewed the previous Office Actions and noted that the Examiner parenthetically mentioned "for training" in apparent reference to *Zhao's* model images. (See, e.g., Final Rejection, dated October 5, 2007, p. 4.) But the Office Actions make no reference to *Zhao's* "new image" nor do they explain the Examiner's assertion that the "model" would correspond to a first transformation "for training" and that the "new image" would correspond to a second transformation. It is respectfully submitted that it would not be reasonable to expect Applicant to have gleaned the argument in the current Office Action based on the Examiner's earlier arguments presented in the three previous communications from the Examiner. Thus, the argument based on the alleged transformations of the "new image" and "model" is new evidence.

Applicant reminds the Examiner that M.P.E.P. § 706.07 states, "The applicant who is seeking to define his or her invention in claims that will give him or her the patent protection to which he or she is justly entitled should receive the cooperation of the examiner to that end, and not be prematurely cut off in the prosecution of his or her application" (emphasis added). Accordingly, even if the Examiner believes she had been sufficiently clear in her previous communication, Applicant should be given the benefit of the doubt and, therefore, be allowed an opportunity to respond to the Examiner's new arguments, especially after

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<sup>1</sup> See First Office Action, dated January 12, 2007, Final Office Action dated October 25, 2007 and Advisory Action, dated January 25, 2008.

filling a proper Request for Continued Examination. Thus, the changes presented in this Amendment should be granted entry for this additional reason.

In light of the reasons above, Applicant submits that the finality of the Office Action is premature and respectfully request the prosecution be reopened and the amendments presented in this Amendment be entered.

**Rejections under 35 U.S.C. ¶ 103**

**Rejection of Claims 10-12, 14, 17, 29, 30, 33, 36 and 37**

*Zhao* and *Belhumeur* cannot support a rejection of claim 29 under Section 103(a) because, when taken alone or in combination, the applied references do not disclose or suggest the subject matter recited in Applicant's claim 29.

The Examiner relies on *Zhao* for its alleged disclosure of an image recognition system that uses principal component analysis ("PCA"). (Office Action, p. 3.) As clarified in the interview, the Examiner asserts that PCA includes two transformations, one transformation of a model (i.e., training) image and a second transformation of a new image, which is compared to the model image data of the first transformation. (Office Action, p. 3, apparently relying on *Zhao*, p. 8, ¶ 2.) The Examiner apparently interprets the transformation of the "model" and the transformation of the "new image" as corresponding to Applicant's claimed "first LDA transformation" and "second LDA transformation," respectively. Present claim 29 obviates the Examiner's interpretation.

In particular, present claim 29 requires that a "transforming the divided facial components into component descriptors of the facial components using a first LDA transformation algorithm determined based on training images" (emphasis added). Because PCA's alleged first transformation transforms the "model," this transformation cannot be used as an algorithm determined based on the "model." Accordingly, *Zhao* does not disclose or

suggest Applicant's claimed "first LDA transformation algorithm determined based on training images" (emphasis) as recited in claim 29.

*Belhumeur* does not overcome the deficiencies of *Zhao*. The Examiner apparently relies on *Belhumeur* for its alleged teaching that LDA may be substituted PCA. (Office Action, p. 5:5-11.) However, *Belhumeur* does not disclose or suggest the above-noted features missing from *Zhao*. Accordingly, *Zhao* and *Belhumeur*, taken alone or in combination, fail to disclose or suggest each and every feature recited in claim 1 and, therefore, cannot support a rejection of claim 29 under 35 U.S.C. § 103(a). Claims 30, 33, 36 and 37, which depend from claim 29, are also patentable at least due to their dependence from claim 29.

Claim 10, although of different scope than claim 29, recites features similar to those recited in claim 29. Accordingly, claim 10 is patentable over the purported combination of *Zhao* and *Belhumeur* for the same reasons as set forth above with regard to claim 29.

Claims 11, 12, 14 and 17 depend from claim 10. Accordingly, these claims are patentable over the *Zhao* and *Belhumeur* at least due to their dependence from claim 10.

*Rejection of Claims 1-3, 5, 8, 19, 20, 23, 26 and 27*

Claim 19 recites, *inter alia*, "a Linear Discriminant Analysis (LDA) transformation unit for LDA transforming the divided facial components into component descriptors of the facial components; a vector synthesis unit for synthesizing the transformed component descriptors into a single vector; [and] a Generalized Discriminant Analysis (GDA) transformation unit for GDA transforming the single vector into a single face descriptor" (emphasis added). Thus, similar to Applicant's claim 10, claim 1 recites two transformations - a LDA transformation and a GDA transformation. However, as argued above with regard to claim 29, *Zhao* only disclose Applicant's claimed "transformations" and *Belhumeur* does not cure these

deficiencies. Thus, for the same reasons provided above with regard to claim 29, *Zhao* and *Belhumeur* fail to teach or suggest the above-noted features of claim 29.

The addition of *Baudat* does not cure the deficiencies of *Zhao* or *Belhumeur*. The Examiner apparently cites *Baudat* for the reference's alleged teaching of using GDA instead of LDA. (Office Action, pp. 7-8.) *Baudat*, however, does not disclose or suggest performing both "LDA transforming" and "GDA transforming" as recited in the claims, nor does the Examiner make such an assertion. (*Id.*) Thus, *Zhao*, *Belhumeur* and *Baudat*, taken alone or in combination, cannot support a rejection of claim 1 under 35 U.S.C. § 103(a).

The applied references also cannot support a rejection of claims 20, 23, 26 and 27 at least due to these claims' dependence from claim 19.

Claim 1, although of different scope than claim 19, recites features similar to those recited in claim 1. Accordingly, *Zhao*, *Belhumeur* and *Baudat* also cannot support a rejection of claim 1 under 35 U.S.C. § 103(a), as well as claims 2, 3, 5 and 8, which depend from claim 1.

#### Rejection of Claims 15, 16, 34 and 35

Claims 15, 16, 34 and 35 depend from claims 10 and 29 and, therefore, include all the limitations recited in the claim from which they depend. The purported combination of *Zhao* and *Belhumeur* fails to teach "LDA transforming the divided facial components into component descriptors of the facial components" and "LDA transforming the single vector into a single face descriptor," as recited in claims 10 and 29. (*See supra.*) The Examiner relies on *Kouzani* for the reference's alleged disclosure of "dividing face components, in different features, which partially overlap each other." (Office Action, p. 10:15-16, *citing Kouzani*, Fig. 2.) *Kauzani* does not disclose or suggest the above-noted features of claims 10 and 29 missing from *Zhao* and *Belhumeur*; and the Examiner does not assert that *Kouzani* makes such a disclosure. Accordingly, *Zhao* and *Belhumeur* and *Kouzani*, taken

alone or in any proper combination, do not support of a rejection of claims 15, 16, 34 and 35 under 35 U.S.C. § 103(a).

*Rejection of Claims 6, 7, 24 and 25*

*Zhao, Belhumeru, Baudat* and *Kouzani* fail to teach or suggest each and every feature recited in claims 1 and 19. (*See supra.*) Thus, these references also fail to teach or suggest the features recited in claims 6, 7, 24 and 25 which depend from claims 1 and 19. Accordingly, when taken alone or in any proper combination, *Zhao, Belhumeur, Baudat* and *Kouzani* fail to teach each and every feature recited in claims 6, 7, 24 and 25. Accordingly, these references cannot support a rejection of claims 6, 7, 24 and 25 under 35 U.S.C. § 103(a).

*Rejection of Claims 13 and 31*

Claims 13 and 31 depend from claims 10 and 29 and, therefore, include all the limitations recited in the claim from which they depend. The purported combination of *Zhao* and *Belhumeur* fails to teach "LDA transforming the divided facial components into component descriptors of the facial components" and "LDA transforming the single vector into a single face descriptor," as recited in claims 10 and 29. (*See supra.*) The Examiner relies on *Erdogan* for its alleged disclosure of using a transformation matrix. (Office Action, p. 12:12-18.) However, *Erdogan* does not disclose, nor does the Examiner allege that *Erdogan* discloses, the above-noted features of claims 10 and 29 missing from *Zhao* and *Belhumeur*. Accordingly, when *Zhao, Belhumeur* and *Erdogan* are taken alone or in any proper combination, these references cannot support a rejection of claims 13 and 31 under 35 U.S.C. § 103(a).

*Rejection of Claims 4 and 21*

Claims 4 and 21 depend from claims 1 and 19, respectively, and therefore include all the limitations recited in the claim from which they depend. The purported combination of

*Zhao, Belhumeur* and *Baudat* fails to teach each and every feature in claims 1 and 19. (See *supra*.) In addition, as noted above with regard to claims 10 and 29, *Erdogan* does not cure the deficiencies of *Zhao, Belhumeur* or *Baudat*; nor is *Erdogan* relied on for such disclosure. Accordingly, when *Zhao, Belhumeur, Baudat* and *Erdogan* are taken alone or in any proper combination, these references fail to support a rejection of claims 4 and 21 under 35 U.S.C. § 103(a).

*Rejection of Claims 22 and 32*

Claims 22 and 32 depend from claims 19 and 29, respectively, and therefore include all the limitations recited in the claim from which they depend. As argued above with regard to claims 19 and 29, *Zhao, Belhumeur*, and *Baudat* fail to teach or suggest each and every feature in claims 19 and 29. *Bock* does not cure the deficiencies of *Zhao, Belhumeur*, and *Baudat*. *Bock* is apparently relied on by the Examiner for its alleged disclosure of "outputting face images of the identified face person." (Office Action, p. 14:6-7, citing *Bock*, p. 1, ¶ 5.) *Bock*, however, does not cure the aforementioned deficiencies of *Zhao, Belhumeur*, and *Baudat*, and the Examiner does not assert that *Bock* makes such a disclosure or suggestion. Accordingly, when *Zhao, Belhumeur, Baudat* and *Bock* are taken alone or in any proper combination, these references fail to support a rejection of claims 22 and 32 under 35 U.S.C. § 103(a).

**Conclusion**

In light of the foregoing, Applicant respectfully entry of this Amendment; and the Examiner's reconsideration and allowance of the above-captioned application.

If additional fees are required for any reason, please charge Deposit Account No. 02-4800 the necessary amount.

Respectfully submitted,

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